AMERICAN FRUIT GROWER

AUGUST 1931

SULPHONATED OIL STOPS RODENTS

ROADSIDE MARKETING

FROM CACTI TO ORCHARD

BLACK WALNUT CULTURE

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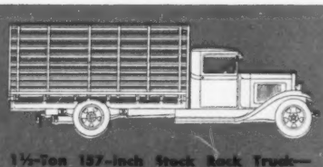

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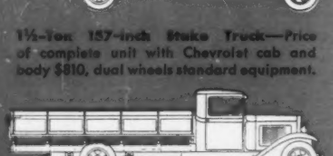

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A BIG 1½-TON STAKE TRUCK WITH A 50-HORSEPOWER SIX-CYLINDER ENGINE

CHEVROLET This is the truck you meet so often on the road—the one you see so often in the yards and driveways of modern farms. It is the 1½-ton 6-cylinder Chevrolet stake truck on the 131-inch wheelbase.

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CHEVROLET SIX CYLINDER TRUCKS

AMERICAN FRUIT GROWER

VOLUME 51 AUGUST, 1931 NUMBER 8

THE MORATORIUM

THE PROPOSAL of President Hoover to the nations of the world for an international holiday on debts and reparations arising out of the world war appears to have fallen short in attainment.

The stumbling block in the path of full realization of the President's program is the temper of the French people. France appeared determined from the outset to take full advantage of the plight of Germany and to force upon that nation the acceptance of certain distasteful political terms as the price of deliverance. By making heavy withdrawals of French gold from the bank of England, and by the threat of further withdrawals, France for a time was able to compel the British ministry to abate in some degree its insistence that France yield full accord to the Hoover proposals.

The assurance of the American spokesmen that the Federal Reserve system would support the Bank of England in case the drain of gold to France becomes dangerous to the British institution appears to have been effective in holding the accord between the two English-speaking nations fairly intact, and resulted perhaps in securing a better deal for Germany than might otherwise have resulted.

Much was to have been expected from the adoption of the Hoover proposal. Its primary object was to aid Germany in the great financial and economic crisis. But it was hoped that general benefit would accrue to the whole world, now affected by the depression. The world needed a more hopeful point of view, which the adoption of the Hoover plan might supply. In the words of the President:

"While the plan is particularly aimed to economic relief, yet economic relief means the swinging of men's minds from fear to confidence, the swinging of nations from apprehension of disorder and government collapse to hope and confidence of the future. It means tangible aid to unemployment and agriculture."

The Hoover plan proposed that: "For one year, that is, from July 1, 1931, until July 1, 1932, the payment of all international debts arising from the world war be suspended. In this year of moratorium the world of business is to have a chance to recover from the removal of that vast overhead transfer of money which has handicapped it for so many years."

That the plan possessed undoubted merit was indicated from the fact that its bare announcement resulted in higher values for agricultural products and commercial paper on the markets of the whole world.

It was even hoped that the successful fruition of the plan, with the general good feeling thus to be engendered, would have its effect on the disarmament conference to be held a few months hence in Geneva, Switzerland. It was hoped that substantial reductions would be made by many nations in armament expenditures, which now amount to the appalling total of five billion dollars yearly.

Evidences are not wanting that the results of the London conference, though short of the Hoover ideal, may quicken the momentum toward more generally prosperous days. There is now a more hopeful spirit abroad in the world.

But as to disarmament—the proceedings at London offer little hope. The tension between nations seems a little tighter if anything. Fear, jealousy, suspicion, hatred, sat in high seats at the council table and waxed fatter and stronger as the deliberations proceeded. In the armed camp of Europe there looms no indication of abatement in the spirit of purposeful preparation for carnage.

THE FREIGHT INCREASE

THAT THE PETITION of the steam carriers for a 15 per cent increase in freight rates would meet with vigorous opposition from the producers and distributors of fresh fruits and vegetables was to have been expected.

All the affected interests of California have girded for combat, and a move for the re-establishment of the Growers and Shippers Protective League as a vehicle for carrying on a united fight against the railroads is well under way.

A single front likewise is presented by the fruit interests of the Northwest, and the Gulf States are in a ferment of resentment at the railroads.

The grower organizations and the shippers present a strong case through the American Fruit and Vegetable Shippers Association. The capable secretary of this organization, Mr. E. S. Briggs, has filed an able protest with the Interstate Commerce Commission in which each contention embodied in the petition of the steam carriers is carefully analyzed and refuted—insofar as application to perishable freight is concerned.

In view of the tremendous mass of evidence already presented to the Commission showing the disastrous results to the fresh fruit and vegetable industry inherent in the proposed freight increase, it is highly unlikely that any increase in freight rates will be authorized on these commodities.

Nevertheless there could be no wisdom in any let-up in the battle until every opposing argument has been presented and the final decision recorded by the Commission.

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We can give you Better Assistance on your Fruit Problems

if you will take the time now to answer the questions below and send this blank back to us today.

Do you think the Agricultural Marketing Act (under which the Farm Board was created) holds any promise of financial benefit to you? .....

Is there now a co-operative organization for marketing fruit in your locality?.....

If so, give the name of the organization .....

.....

and name of manager .....

Are you a member? ..... In your opinion is this organization a benefit to your community? .....

Have you a roadside stand?.....

What fruits do you grow commercially (for sale) and what is your normal crop of merchantable fruit?

..... bushels Apples ..... bushels Prunes
..... bushels Plums ..... cases Strawberries
..... tons Cherries ..... cases Grapefruit
..... cases Raspberries. ..... cases Lemons
..... cases Oranges ..... bushels Pears .....
..... bushels Peaches ..... tons Grapes

Other fruits: .....

.....

.....

.....

.....

How many and what kind of Sprayers and Dusters do you operate:

.....

.....

Have you installed a Fruit Washer? or Cleaner?.....

What Kind? .....

Do you plan to install one? .....

Have you electric current for pumping water? .....

Gasoline Engine?..... Wind Mill?.....

How many and what kind of Motor Trucks? .....

.....

.....

Orchard Tractors? .....

.....

Garden Tractors? .....

Do you use advertised brands of Spray materials and Fertilizers?

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Name .....

Address .....

Please fill out in full and send to

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NEW SULPHONATED OIL TREATMENT STOPS RODENTS

By HAROLD HARRIS

AT LAST COMES a really satisfactory answer to the problem of keeping rabbits, mice and other rodents from stripping young fruit trees. Sulphonated oil, painted or sprayed on the trunks, not only does the job thoroughly, but also does it easily, quickly and cheaply. Announcement of the discovery of this new treatment by Dr. R. B. Harvey, noted plant physiologist of the Minnesota Agricultural Experiment Station, comes just in time for fruit growers to give it an eleventh-hour trial this fall against rodents which are certain to be troublesome during the fall and winter.

During the past two winters, Dr. Harvey has been seeking a rodent repellent, confining rabbits in pens with trees treated with various mixtures, including aluminum and bronze paints, whitewash, copper soap dissolved in linseed oil, oil and rubber, beef liver blood, and the sulphonated oil. Although several of these treatments kept the rabbits from attacking the trees until they were near starvation, the sulphonated oil was the most effective. Trees treated with this mixture were left until others were completely stripped. When the rabbits finally attacked these trees they promptly died, either from starvation or possibly from the action of the sulphonated oil on the kidneys. The conclusion from these and later extensive trials is that under normal conditions rodents will completely avoid trees treated with sulphonated oil.

To prepare the mixture, heat linseed oil to 470 degrees Fahrenheit, or in other words, until it is smoking hot. Set it outdoors and immediately add flowers of sulphur, one part to nine parts of oil by weight, making a 10 per cent solution. Sift the sulphur slowly into the hot oil and stir it. The mixture will become hotter until all the sulphur has dissolved. When it cools, the mixture will be ready for applying to the trees with a brush, or if it is to be sprayed it may be thinned with turpentine to permit application with an ordinary chemical sprayer.

Dr. Harvey explains that a rubbery coating is formed by the sulphonated oil which seems to be a considerable protection for wounds. Copper soap may also be combined with the oil as

(To page 13)

Typical samples of injury from experimental orchard. A—Tree treated with concentrated lime-sulphur. B—Tree treated with beef liver blood. C—Sulphonated oil treatment. D—No treatment. Rabbits were confined to pen with no food other than bark of trees. They first stripped the untreated trees, and quite readily attacked those treated with beef blood. Later the bark treated with lime-sulphur was attacked to a considerable extent. Finally young limbs treated with sulphonated oil were attacked, but the rabbits succumbed the next day.

ROADSIDE MARKETING

By CAROLINE B. SHERMAN

ROADSIDE MARKETS are handling an increasing proportion of the fruit and vegetable crops of American farmers. Conditions vary from area to area, from year to year, and even from farm to farm, but a tendency toward increased stability and volume of sales among roadside markets is evident.

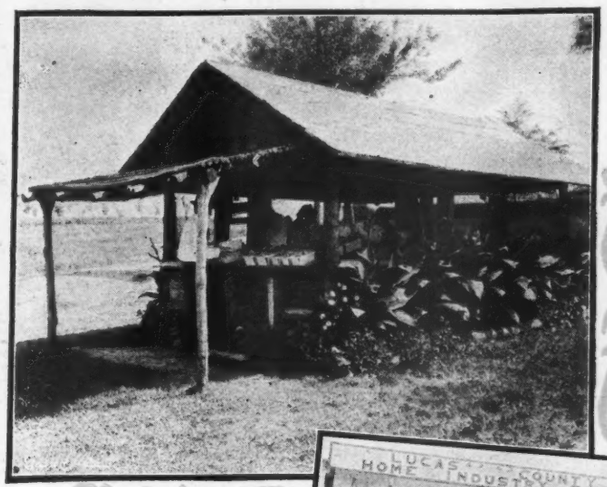
This tendency toward stability means that farmers are less inclined than formerly to use the roadside stand merely to get rid of job lots or leftovers after the trucks have gone to market. It means that the stands that offer an irregular and indifferent supply of fruits and vegetables are gradually growing fewer in number, while roadside markets that offer a continuous and steady supply of reliable produce during a relatively long period of the year are increasingly evident.

It means that many farm families are arranging their plantings and choosing their varieties so as to provide for a long season. They are opening their stands as early as possible each year and keeping them open as long as possible, and they are encouraging their patrons to depend upon the market and to come to it regularly. If necessary, they are filling out the early and late supplies with sidelines like flowers, eggs, and honey in the spring, and sausage, scrapple, nuts, and mincemeat in the fall.

It means that co-operation is playing a real part, in some instances, in roadside marketing. To insure a satisfactory supply, or to make fuller use of the time of the salesman or saleswoman, farmers are combining to use one good roadside market as an outlet. One successful roadside market in Ohio has been the regular outlet for all of the fruit produced by eight or 10 growers during the last five years.

Eventually it will probably mean rather fewer roadside markets but better ones. "Better markets" does not necessarily mean larger markets, but it does mean attractive markets, with good supplies of good products, run in a business-like way.

Campaigns for improving the appearance of our roadsides, for reducing the number of signs, and for regulating their size and position, that are now being so actively prosecuted in certain parts of the country, particularly in the East, are bound to have an effect on the wayside markets in the territories involved. The campaigns will tend further to discourage and eliminate the unsatisfactory, unsightly, and over-advertised stands, for at least in one State a tax on signs will be levied, but campaigns can prove definitely beneficial to the serviceable, neat, attractive stands which lend a welcome note of natural color of fruit, vegetable and flower, which offer a restful area of shade, and which feature perhaps some historical spot or story, or emphasize some local specialty.



Roadside improvement campaigns may mean that eventually our roadside markets will be attractively constructed.

Below.—Roadside marketing lends itself to co-operation.

Nearly all surveys show fruits and vegetables to be the predominating line of goods sold at roadside markets. Thus a Michigan study showed sweet cherries to be by far the most important single item in the season's business, and this study showed other fruits to be more successful sellers at the roadside than vegetables. In New Jersey and several other States, fruits and vegetables constitute the chief lines, but in New Hampshire, a mountain and vacation State, these products are of a lower relative importance. A larger proportion of the stands in Massachusetts carry these farm products and in a consumer study in the State, when asked what kind of products they liked to buy at roadside markets, the customers showed an overwhelming preference for fruits and vegetables. More than 1500 stated this preference, whereas the next most popular group, poultry products, received only 223 votes. The customers who liked to buy fruits and vegetables at these stands almost invariably gave freshness as a reason.

Evidence is strong that women are important customers at roadside markets. If they do not actually buy, they are likely to be consulted by the driver of the car and to make the selection as to size of container and variety of produce. Their wishes and dislikes and the reasons for them are given increasing attention by the successful roadside operator, who, in a fair proportion of the stands, is a woman herself. The fact that some other member of the family can sometimes make an excellent salesman and thus leave the farmer free for farm work is one of the reasons why this method of marketing is popular.

One or two States have [Please turn to Page 13]

Calla lilies and amaryllis and birds in cages in this tropical setting add to the interest of the roadside.

A good market does not necessarily mean a big market.

A simple display that adds luscious color to the roadside and attracts buyers.

FROM CACTI TO ORCHARD

By MARGARET PAGE HOOD

FROM PRICKLY PEARS to Bartletts, from the bitter fruit of the ocatilla to the sweetness of the Delicious apple is the fruitful history of the Mesilla Valley, New Mexico, over 300 years of horticultural development.

When Spain sent the great explorer Oñate from Old Mexico in 1598, he reported that he found no signs of agriculture in this section of New Mexico. Cactus, mesquite and greasewood covered the mesas, and along the river banks grew the great cottonwood trees, but there were no evidences of systematic cultivation of the soil.

With the advent of the Spanish settlers from Old Mexico, however, came the cuttings of the grape; the peach, apricot, pear, plum and apple seedlings. The Mesilla Valley first became known horticulturally as the largest and oldest grape-producing district of the old southwest. The Mission grape of this section originated at Juarez, Mexico, just south of the Mesilla Valley, and cuttings of this variety were planted by the settlers up and down the river. The variety most favored was the El Paso Mission, although the Muscatel, a small sweet variety of muscat flavor, was also developed by the Mexican farmers.

This valley, with its mild climate and peculiar soil conditions, was especially adapted to the European type of grape, and Mesilla Valley rapidly increased its vineyards until by 1867 grapes were one of the leading products of the district and remained so for many years, grapes being shipped into Colorado, Kansas and other points north and east. In recent years the more improved varieties of grapes have appeared in the New Mexican vineyards; the Malaga, Muscat of Alexandria, Black Cornichon, Thompson's Seedless and Tokay are all successfully grown in the mild and fertile valley. But still sweet and delightful in all the old vineyards are found the El Paso Mission grapes descendent of the cuttings brought north by the Spaniards from Mexico.

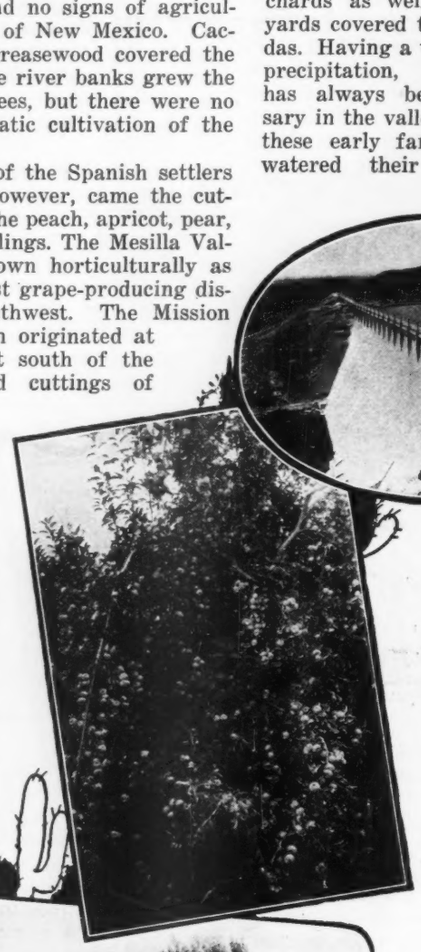
Along with the grape cuttings these settlers brought the apple, apricot, peach, plum and pear seedlings, and orchards as well as vineyards covered the haciendas. Having a very slight precipitation, irrigation has always been necessary in the valley, so these early farmers watered their orchards from the Rio Grande, building up a system of crude community ditches.

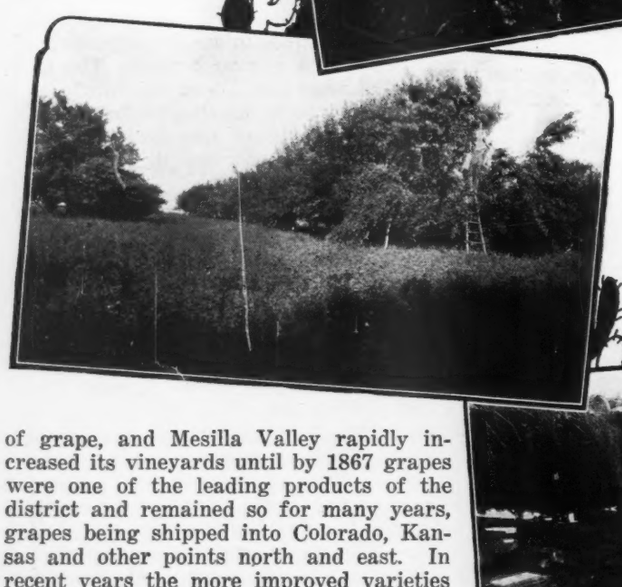
The Mesilla Valley was for a long time isolated from the east, and it was not until the coming of the American settlers around 1854 that the farmers were able to secure improved or grafted varieties of orchard fruits. Two of the first orchards of improved strains started in the valley were those of T. J. Bull and Thomas Casad. Both of these orchards date back to 1870, and through the years have become increasingly famous, the Casad orchard especially developing into one of the largest apple orchards of the Southwest.

The real impetus to agriculture of all kinds came to the Mesilla Valley with the building of the great Elephant Butte Dam in 1915. This dam impounded the waters of the Rio Grande and furnished irrigation for over 100,000 acres of fertile land which needed only an assured water supply to burst into production. This production has increased yearly until it reached a high-water mark of $13,000,000 the past year. A fair share of this revenue is contributed by the valley fruit, especially apples. Early springs, continuous sunshine, good soil and plenty of water have combined to produce fine apple crops, the main varieties being the Ben Davis, Winesap, Bellflower, Rhode Island Greening, Arkansas Black, Jonathan, Stayman Winesap and Delicious.

The valley is noted mainly for its cotton crop, Dona Ana county having the record of producing more cotton to the acre than any other county in the United States. But although the farmer may be vitally interested in his cotton and alfalfa, practically every farm has its flourishing orchards of peach, pear and apple; while many of the commercial orchards have brought prosperity and assured success to their owners.

Irrigation has brought the land a long way from the days of Oñate, who called it the land of cactus, to the days of the J. H. Hale peach, the Bartlett pear, and the Delicious apple.





Reading from top down:

Grapes of the Mesilla Valley.

The Elephant Butte Dam which has made possible the remarkable agricultural development of the valley.

The J. H. Hale peach grows successfully in the valley.

Alfalfa flourishes in Mesilla Valley orchards.

Native packing sheds.

Mesilla Valley sweets.

BLACK WALNUT CULTURE

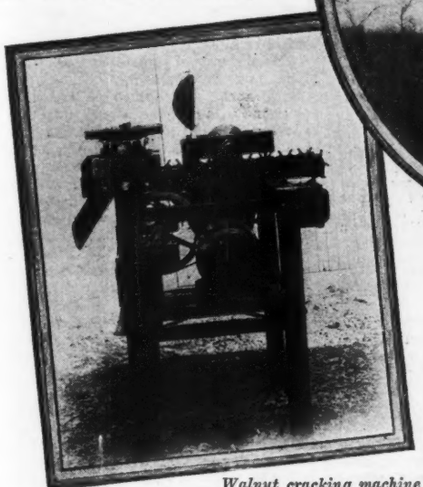
By T. J. TALBERT

PART I

THE BLACK WALNUT, *Juglans nigra* (L), all factors considered, is perhaps the most valuable tree known. It furnishes a highly nutritious and useful human food, and produces large quantities of timber, which are sought for innumerable economic purposes. Moreover, as a shade and ornamental tree it has no superiors and few equals.

In the consideration of a tree to be known as the State and National Memorial Tree, producers and folks generally throughout the United States have turned to the black walnut as ranking among the first of our native trees for this high honor. It is also true that the black walnut is being considered by many as the best tree known for strictly memorial purposes.

Some would insist upon beauty as the prime requisite in determining the tree best fitted for memorial, State and national purposes, while others would be equally as firm in their belief that utility should be given first consideration. In either case the black walnut has a combination of characters fitting it admirably for these purposes. The world over, it is known as practically the only tree that may be planted which combines valuable annual crops of nuts with a serviceable and a highly prized tree for planting on the lawn, highway, or elsewhere for shade and ornamental purposes.



Walnut cracking machine invented and now in use by Aaron F. Walker of Exeter, Mo.

The black walnut is a very cosmopolitan tree in that it will thrive almost anywhere if given half a chance. From lower Canada to the Gulf of Mexico and from the Atlantic to the Pacific Coast, it may be found in various States of production. On the fertile lands, however, of the Mississippi and Ohio River basins it reaches perhaps its highest development. According to the United States Department of Agriculture, the 10 high ranking commercial States in walnut lumber production are as follows, in order of their importance: Missouri, Illinois, Kentucky, Ohio, West Virginia, Iowa, Tennessee, Arkansas, Indiana, and Texas.

As the wood does not warp or swell badly when wet and works easily with tools, it has few equals for certain requirements. Among these are the making of gun stocks, in which it stands supreme. Airplane propellers manufactured from this wood are, in general, the most satisfactory. The fact that walnut does not warp or swell when wet does not interfere with the action of the gunlock in gun stocks. The wood also may be made into a sharp edge and fit snugly against the metal parts, while the dark color and beautiful grain produces an attractive implement.

Some of the main or principal uses of the wood may be enumerated as follows: It is a standard and a favorite for musical instruments, notably pianos and organs, sewing machine tables, cases, picture frames, caskets, cabinet work, moldings and many forms of ornaments. The shells of the nuts were, during the war, manufactured into carbon and used for gas masks; and as previously stated, the wood ranks first for gun stocks. For automobile steering wheels and airplane propellers it is useful and serviceable.

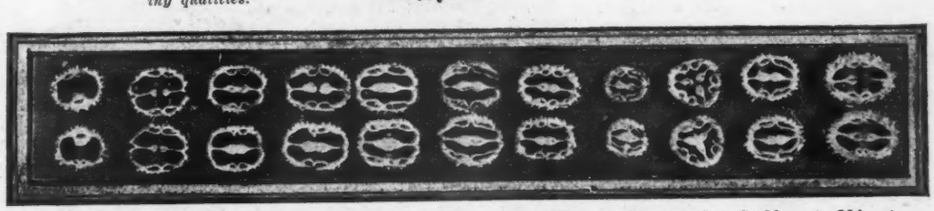
The wood possesses unusual and rare combinations of qualities which make it superior in the manufacture of the article mentioned above. Its freedom from warping, checking or splitting when subjected to alternate wetting and drying is an unusual quality. It works easily with all kinds of tools, has remarkable durability in the presence of wood-decaying fungi and insects. Moreover, it is hard, durable, heavy, stiff and strong. The dark color of the wood does not allow soiling stains to show and the grain of the wood and its texture makes it easy to grip.

The kernels of the black walnut are now used not only in candy making but to a large extent in breads, cakes, salads, waffles, and other forms of food. In the cities the kernels are sold yearly in increasing amounts not only from wholesale and retail grocers but by street venders as well. One may often find the kernels for sale at food stands and in other places where fruits and vegetables are sold.

A wider use of the walnut kernels has been stimulated by better methods of cracking the nuts. In recent years several types or kinds of machines have been invented. All of these seem to be improvements over cracking with the hammer. Attention has been recently called to the development of a walnut nut cracker in southwest Missouri which was originated, made, and patented by Aaron E. Walker, of Exeter, Mo. Mr. Walker states on January 23, 1931, that up to the present time 125,000 pounds of black walnuts have been purchased from local producers. From November 18, 1930, to January 23, 1931, he employed in his factory 12 girls and two men, paying the men $12 per week and the girls 10 cents per pound, or about $10 per week. [Please turn to Page 11]

Seedling black walnut trees. Tree on left untreated while tree on right shows top growth of five years after all branches were removed and cleft-grafted to Stabler.

Stabler walnuts showing cracking qualities.



Black walnut shells showing kernel cavities. Reading from left to right: 1 and 2, Stabler; 3, Ohio; 4, Thomas; 5, Tucker; 6, Miller; 7, Ten Eyck; 8, 9, 10 and 11, ordinary seedlings.

QUESTIONS AND COMMENT

Conducted by T. J. TALBERT

Questions on fruit growing problems and on general horticulture will be answered through this department if of general interest. For reply by mail enclose 2c stamped envelope (air mail 5c). Address AMERICAN FRUIT GROWER, 53 West Jackson Blvd., Chicago.

Pollinators for the Baldwin

What trees, if any, would you set among Baldwin? I am setting out an orchard of 200 trees, Baldwins, interset with some eight kinds of peach trees.—J. P. E., Rhode Island.

If the Baldwin variety of apple is set in blocks of about three rows each, alternating with each other across the orchard with Delicious and Jonathan, it is believed that so far as cross-pollination is concerned facilities will be provided. Other varieties like Duchess, Wealthy, McIntosh, and Grimes no doubt would be satisfactory.

It is suggested, however, that not less than three varieties, including the Baldwin, be planted.

For more detailed information relative to the cross-pollination question as applied to your particular conditions, it is suggested that you write to your own Department of Horticulture, Agricultural Experiment Station, at Kingston, R. I.

Curculio and Brown Rot

1—How long will a curculio beetle continue to lay eggs after emerging? How many eggs do they lay?

2—What becomes of the beetle after it stops laying?

3—How long does it take the eggs to hatch?

4—How long does the worm stay in the peach after incubation?

5—Does a beetle always lay an egg when "stinging" a peach?

6—Is wax on a peach always evidence that the peach has been stung? If not, what causes it?

7—Will all stung peaches fall from the tree?

8—Will the worm leave a peach as large as a hen's egg?

9—If the worm eats itself out of such a peach, will the hole close up and the peach be a "shipper" at harvest time?

10—How long does it take to kill a beetle when it gets a dose of arsenic?

11—Is five per cent arsenate of lead sufficient in dust to be effective?

12—Will brown rot attack the stem of a peach, half grown, and cause it to drop?

13—If the first brood of curculio appears, say, April 15, how long will the beetles continue to emerge?

14—Why do we find, as a rule, but one worm in a peach from the first brood of curculio, but frequently find two, three and at times as many as four, worms in a peach at harvest time?

15—How does a curculio beetle propagate itself if there is no peach crop? On what does it feed and in what does it deposit its eggs in the absence of peaches? (Not a peach in my orchard last year but still we have beetles in large numbers.)—W. F. M., Arkansas.

The answers to your questions will be given according to the number as follows:

1. The plum curculio no doubt is the one to which you refer. The female may lay from 100 to over 500 eggs. The egg laying period may extend over nearly the whole season. The greatest number of eggs, however, are usually laid the first month after the fruit sets.

2. The over-wintering adult beetles may live through most of the growing season, and, as previously stated, the female may continue to lay eggs until late summer or early fall, at which time they die.

3. The eggs hatch in three to seven days and the white or yellow grub bores through the flesh of the fruit, and in the case of the stone fruits it usually bores to the pit, where it continues its feeding.

4. The larva or grub becomes grown in from 12 to 18 days. In fallen apples, however, the grub may require 20 to 26 days to complete its development. When full grown the larva leaves the fruit and enters the soil, where it forms a small cell an inch or two below the surface. It transforms to a white pupa and three or four weeks elapse before it emerges as an adult beetle. The first emergence of beetles generally occurs about 10 days to two weeks after apples blossom. The majority appear, however, two or three weeks later and the rest may continue to emerge until October. During dry weather the beetles remain in their cells much longer than normally. The beetles begin hibernation with the first frost. A period of about 50 days is required in development from egg to adult.

5. The plum curculio makes two kinds of punctures on the fruit—egg and food punctures. The egg puncture is shaped like a crescent. The female first eats out a small hole and deposits a small oval white egg in the cavity. A small segment of the skin of the flesh around the egg is then cut. This crescent tends to interfere with the growth of the tissues around the egg itself and prevents its being crushed. The average life of the female is about two months, during which time the average number of eggs laid range from 100 to 300.

6. The wax on the peach is not always evidence that egg or food punctures have been made by the curculio, as injury to the peach may occur as a result of damage through mechanical forces or through injury by fungi, such as that known as peach scab.

7. The punctures made by the adults of both sexes in feeding are simple round holes like those in which the eggs are laid. They are without, however, the crescent marks. Infested fruits with the exception of most varieties of cherries usually fall to the ground before the grubs mature. In the case of apples many of the young grubs are killed in their burrows by the pressure of the growing fruit cells, and as a result the apple fruit does not fall badly as a result of curculio stings.

8. The grubs or worms are not likely to leave the peach after reaching the size of a hen's egg.

9. No.

10. A beetle may be killed in a few hours after eating arsenic on the fruit. In other instances small bits of the poison may not kill the beetle for several hours.

11. Lead arsenate being a very concentrated poison, from five to fifteen per cent is used in a mixture 85 to 95 per cent bulk as a dust. In hot, humid sections, however, five per cent lead arsenate is used with 20 per cent hydrated lime and 75 per cent sulphur. In cooler regions where temperature and humidity are not so great, a mixture containing 10 per cent lead arsenate, 10 per cent hydrated lime, and 80 per cent sulphur may be employed safely on peaches. Moreover, as a spray lead arsenate containing five per cent should prove satisfactory.

12. Brown rot may attack the stem of the peach when half grown and cause the fruit to drop.

13. The beetles hibernate under grass and litter usually near the orchard. They commence to emerge just before the fruit trees bloom in the spring. They may feed somewhat on the buds, unfolding leaves, and blossoms; but mostly on the young fruit as soon as it is set. They may continue to emerge for a month or six weeks or longer under cool damp weather conditions.

14. Perhaps the main reason for only one grub in the peach early in the season is due to the fact that there are less egg punctures made earlier in the season.

15. The curculio beetles feed on wild plums, wild crab apples and Hawthornes; and usually have little difficulty in perpetuating the species although our cultivated fruits, such as peaches, cherries, and plums, are destroyed by late spring freezes and frosts.

An Evergreen Windbreak

Am considering planting an evergreen windbreak at one corner of my orchard and have been thinking of Norway spruce. Is that specie satisfactory or is there any other variety you consider better? Also please give me proper planting distance between the trees, taking into consideration when full grown. Can you also furnish me the name of a nursery that sells seedling evergreens?—J. A. H., Pennsylvania.

Of the evergreens, the spruce and pine are generally considered best for orchard windbreaks. This is because such evergreen trees do not harbor or carry injurious insects. The Norway spruce may be planted on the windward side of the orchard, as you suggest. It is important to get the spruce trees at least 50 feet away from the first row of fruit trees, and 75 feet away would be even better.

The Norway spruce tree may be planted in rows about 15 feet apart and about the same distance between the rows. To make the windbreak more effective, set the trees in the second row in such a way as to have a tree approximately half way between the trees of the first row. Such a plan of setting may be continued in additional rows until the planting is finished.

As to the list of best nurserymen from whom you may purchase seedling evergreens, it is suggested that you write to your own Agricultural Experiment Station, Department of Horticulture, State College, Pa.

Filberts

I read the interesting article on the filbert industry in the American Fruit Grower. Could you tell me where I can find some more information or literature on this subject? My father tells me that when he was a little boy there were wild filbert bushes (as they called them) in this section of the State of Ohio.

We have a cherry tree that has a crack up one side. What can I do about this? —A. M. S., Ohio.

It is suggested that you write to the United States Department of Agriculture, Division of Publications, Washington, D. C.; the Oregon Agricultural Experiment Station, Corvallis, Oregon; the Washington Agricultural Experiment Station, Pullman, Washington; the Ohio Experiment Station, Wooster, Ohio, and the New York Agricultural Experiment Station, Geneva, for available publications regarding filbert culture.

One of the best methods of handling your damaged cherry tree is to cut away the decay and dead wood that may be in the crack or crevice. Paint this with a solution of copper sulphate made by dissolving about one pound of crystals to five gallons of water. When this is dry, paint the wounded or exposed area with barn paint.

Moreover, it is important that the base of the cavity be provided with good drainage. This may be made by cutting away the bark of the wood, or by boring one or two holes in the bark at base of trunk through which the water may pass.

Propagating Grape Vines

Please tell me how I may get and start slips from my grapevines and how to take care of the young slips the first year.—M. J. B., Kansas.

The grape is generally propagated by means of cuttings taken in the late fall or early winter and placed in cold storage or stored in an outdoor pit.

The cuttings are made by severing the cane of last year's growth just below a node; counting this one, count off two more nodes above and sever the cane about one inch or one and one-half inches above the third node. This constitutes a cutting, and as many others of about the same length may be made as needed.

The soil for the cuttings should be well prepared by deep plowing and thorough disking or harrowing. Lay off the rows about three and one-half to four feet apart and plant the cuttings in the row about five to seven inches apart, leaving the top bud or node just above the soil. It is very important that the soil be pressed firmly about the base of the cuttings and that timely and thorough cultivation be given from planting time until late July or early August.

Bordeaux-Oil Spray

A few weeks ago I read an article in some magazine recommending Bordeaux mixture of 3 and 3 with 2 per cent oil.

I made the Bordeaux by dissolving one pound of bluestone to a gallon of water and one pound of lime to each gallon. Then I poured the bluestone mixture into the lime and ran it through a sprayer. I added the oil to this and ran it through a sprayer and found that it would not make a good mixture, the oil coming to the top. Then I put Kayso into a little water and put it into the oil and mixed it, then added it to the Bordeaux mixture again, but it would not mix right. I used light auto oil.

Let me know how to make a good oil spray, how to make a mixture of oil and Bordeaux to take place of lime-sulphur.

What do you think of the oil and Bordeaux spray in place of lime-sulphur for apple, peach, pear and cherry trees?—E. M., Illinois.

It is possible that your oil emulsion was unsatisfactory due to the fact that you used light oil unsuited for making lubricating oil emulsion.

In general, the oils used in making emulsions are of the cheap lubricating type usually sold under the name of engine oils or of the type known as floor oils or paraffin oils. Such oils should give a specific gravity test of 27-28 degrees Baume and have a viscosity of 90 Saybolt or higher. Investigations have shown that usually the better the oil is for lubricating purposes, the poorer it is for the making of an oil emulsion.

To make 200 gallons of oil emulsion, using calcium caseinate, take eight ounces of the so-called caseinate, or Kayso, make it into a paste by slowly adding water and stirring until two gallons of water have been added. Then add this to four gallons of oil, mix and pump under pressure. The suction hose may be placed into a half barrel or other container in which the mixture is placed and by means of the power sprayer the liquid is pumped into the tank. It may be then pumped out of the tank into the container in which it is to be stored or kept for use.

It is generally advisable to use if possible a weak Bordeaux solution with the oil emulsion, as this tends to prevent the oil from separating out. In other words, the Bordeaux acts as a good emulsifier.

The lubricating oil emulsion as discussed above is intended for the dormant or semi-dormant spray. If the product manufactured as suggested above is used in the summer sprays, it is likely to cause injury to fruit and foliage.

Some of the lighter oils manufactured by chemical concerns particularly for spraying purposes may be used at recommended dilutions in the spring and summer without doing material injury to foliage or fruit. Some of these so-called summer oils have been used successfully for the last two or three summer applications in apple orchards for the control of codling moth. The object, of course, has been to reduce the amount of spray residue at harvest time. Moreover the summer oils have in most cases given as good or nearly as good control of codling moth as where arsenical sprays are used.

If a fungicide is needed, the summer oil may be combined with Bordeaux. The oil-Bordeaux sprays, however, are suitable for use on apples and pears. For the stone fruits such as peaches, cherries, plums, and apricots, there is more likelihood of danger through burning by russeting.

MONTHLY FRUIT AND VEGETABLE REVIEW

APPLES

If the July 1 forecast of apple production materializes, the crop will be the largest produced in the United States since the exceptionally large 1926 crop. The forecast is for 211,076,000 bushels, which would be 129% of the production in 1930 and about 121% of the average for the previous five years. The largest changes from last year are to be found in the South Atlantic and the Central divisions where the 1930 crop was cut by the severe drought. In these divisions the crop is forecast at more than twice the 1930 production and half again larger than the five-year average. The North Atlantic prospects are for a crop about 88% of the 1930 crop and about 102% of the five-year average. In the Western division production is forecast at 53,183,000 bushels, which would be about 83% of last year and 95% of the average for the previous five years.

Weather conditions during June were favorable to the apple crop as a whole. Precipitation along the Atlantic seaboard from North Carolina to southern Maine was heavy during June. Western New York and the Valley of Virginia had only about 75% of their normal rainfall but these sections report good condition generally. High temperatures prevailed over much of the Eastern area. The precipitation in the North Central States was normal or above in most of the important fruit areas while temperatures were mostly normal or below except in a few localities. The above-normal temperature areas for the most part missed the important apple sections. During the first part of June the Pacific Northwest was experiencing a shortage of moisture which began to look serious. However, the situation was relieved during the last half by heavy rains which were decidedly helpful to the apple crop. In many sections the June drop is reported delayed. For the most part, it has been a good season for spraying and the disease and insect situation seems to be well in hand.

PEACHES

The condition of peaches on July 1 was reported at 76.3 per cent as compared to 46.5 on the same date a year ago and 61.3 the average July 1 condition for the preceding 10 years. If the July 1 condition holds good and the present forecast of 77,963,000 bushels finally materializes, it would be about 141% of the 1925-29 average production and the largest peach crop to be produced since records began in 1899. In the Central and South Atlantic divisions, where the 1930 crop was unusually short, the July forecast is for a crop about 140% of the five years preceding 1930. The North Atlantic expects a crop about 117% of the 1925-29 average, while in the Western States, due largely to another big crop in California, the forecast is for a crop nearly 150% of the average. Practically all States report uniformly better than average conditions prevailing on July 1. There seems to have been a heavy set of fruit with thinning necessary in many areas. Weather conditions have been favorable and a crop of good quality is expected.

PEARS

The condition of pears on July 1 is reported at 60.2% as compared to 61.1 on July 1 last year and 60.9%, the average on the same date for the previous 10 years. Production is forecast at 24,406,000 bushels which would be less than 90% of the 1930 production and 110% of the average production for the previous five years. As would be expected, the prospects this year are much better than in 1930, in the Central States. The North Central forecast is for a crop about 125%, the South Atlantic 134%, and the South Central division 103% of the five-year average production. In the North Atlantic States, where an unusually large crop was produced in 1930, the crop is now forecast at 2,368,000 bushels, or about three-fourths of the average production. In the Western division Idaho is the only important State which now looks toward a larger crop than in 1930. For the Western division as a whole the production is forecast on July 1 at 15,890,000 bushels which would be about 114% of the average production for the period from 1925 to 1929.

CALIFORNIA GRAPE CROP DAMAGED BY HEAT

(July 20)—California's grape crop prospects on July 1 are estimated to have been lowered about 12.5% by the period of very high temperatures prevailing the first week in July, according to a report received on July 20 by the United States Department of Agriculture from its office at Sacramento, Calif.

In a special survey made July 13, or about one week after the heat wave broke, the California crop reporting service found that serious injury occurred in most of the grape areas although in a few there was no change from conditions reported on July 1. The condition for the State as a whole declined from 76% to 62% between July 1 and 13, the lowest condition ever reported for this time of year. Wine varieties are reported at 67%, raisin varieties 62% and table varieties 54%. Condition of all classes of grapes except wine varieties is below the previous low point recorded in 1921 and wine varieties are barely above the low 1921 condition.

Table varieties were most severely damaged, the July 13 reports indicating a possible crop this year of 240,000 short tons or 67,000 tons less than was forecast on July 1. Wine varieties are now forecast at 395,000 tons or 30,000 less than on July 1 and raisin varieties 887,000 tons or 123,000 tons less. The total production of all varieties is forecast at 1,522,000 short tons, a crop that would be about 30% smaller than either the 1930 production or the average of the previous five years.

POTATOES

The acreage planted this year is estimated at 3,506,000 acres compared with the revised estimate of 3,167,000 acres grown in 1930. This represents an increase of 10.7% over the 1930 acreage or a somewhat larger percentage increase than was expected from the March intention reports of growers. The increases over acreage intentions occur chiefly in the Central States, Northern and Southern. The Northeastern States have only slightly exceeded their earlier expectations, while the Western and the South Atlantic States partially reduced their plans for increase.

The condition of the crop on July 1 was reported to be about the same as on that date a year ago and only a little below average. According to the July 1 condition reports, the crop this year appears likely to make about 396,450,000 bushels, barring unusual circumstances prior to harvest. This would be at least 15% larger than the crop of 1930, the revised estimate of which is approximately 343,200,000 bushels. Yields are expected to average somewhat higher than last year over the country in general but in some areas, principally in the West and in some Central States affected by the recent heat wave, yields are not likely to equal those of 1930. In the deficit producing States, both Eastern and Central, conditions do not point to the possibility of very much higher yields than in 1930. Because of acreage increases, all but a few of the Central States will probably have a larger crop than a year ago in spite of low yields. In the Western States, however, production is generally expected to be much lower than in 1930, averaging nearly 13% less for the group of States. Shortage of moisture and irrigation water is the principal threat to higher yields in many of these States.

SWEET POTATOES

Except in the Atlantic Coast areas producing dry-fleshed sweet potatoes, growers have generally carried out their plans for a large increase in acreage for this year. The reported increase is 20.6% for the country as a whole, the plantings being estimated at 871,000 acres compared with the revised estimate of 722,000 acres in 1930. Increases range from 10 to 40% in most of the Southern States, averaging 30% in the South Central group and over 10% in the South Atlantic.

The condition of the crop on July 1, at 68.1%, is slightly lower than was reported a year ago and noticeably below average. In areas most severely affected by drought last year, yields are expected to average higher but in some of the heaviest producing States, in the South, yields are not likely to average up to those of a year ago. Production, on the basis of the reported conditions on July 1, is forecast at about 74,070,000 bushels compared with the revised estimate of 62,230,000 bushels produced in 1930, or an increase of 19 per cent.

COMMERCIAL TRUCK CROPS

For the most part, the commercial truck crops now growing in various parts of the country show better than average condition for this time of year. The principal exceptions are lima beans, cabbage and cantaloupes. Conditions vary widely between States, but in general they are reported quite good for all except watermelons and the other three crops mentioned. Lettuce production in one group of late States is indicated to be about one-fifth less than last year, due to lower yields and a 5% smaller acreage. Celery production in the Intermediate States is expected to be slightly larger than a year ago. A 44% larger cucumber crop is indicated in the Intermediate States on an acreage 7% smaller than in 1930. A number of these States were hard hit by drought last year and expected yields this year are very much greater. Production of cantaloupes and miscellaneous melons in 1931 is expected to amount to 16,900,000 crates in States which produced four-fifths of the commercial crop last year. This is an indicated increase of 37% over the 1930 crop in these States.

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PLANTING DATE PALM OFFSHOOTS

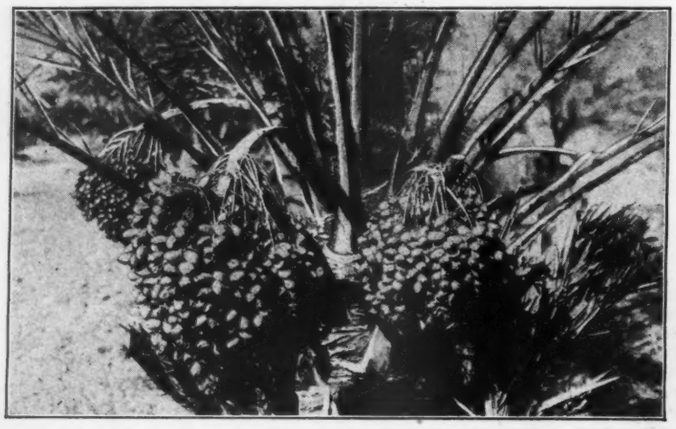
By DELPHIA PHILLIPS

THE DATE PALM can be propagated by either seed or offshoots, but no assurance is given the grower that he will get a large percentage of commercial dates from trees raised from seed. According to a Farmers' Bulletin issued by the United States Department of Agriculture, the trees grown from seed are likely to be about 50 per cent males. A few males are necessary to pollinate the female, or fruit-bearing trees, but 50 per cent is too many.

Dates enclosed in bags for protection. A tree of mature size produces from 150 to 200 pounds of fruit per season, occasionally 300.

The offshoot of the date palm is a bud in the axil of the leaf, hence is a direct product of the growing stem and is of the variety of the parent plant.

According to this bulletin, some individual trees develop the offshoot buds earlier and more rapidly than others of the same variety, and the varieties differ very markedly in their offshoot-producing habits. Generally speaking, young palms should begin to produce offshoots in the third year and continue to produce them until the tenth or twelfth year. It was found that varieties differ both in the length of time during which offsets are produced and in the total number produced.



Above is shown one of the offshoots of the date palm not yet removed.

The first offshoot buds which develop are situated at or very near the base of the palm. After the third year these buds develop very rapidly, and at the end of the fourth or fifth year the grower should be able to cut an average of one or two offshoots from every tree in the orchard. Offshoot buds very often develop on the trunk of a palm from two to four feet above the base. Some varieties have been known to produce offshoots six feet above the ground, but this is unusual in the Coachella and Imperial Valleys in southern California on account of the extremely dry atmospheric conditions.

Along the coast in southern California where heavy fogs and cooler temperature prevail, the date palm seldom produces fruit, but will produce offshoots indefinitely. Offshoots 20 feet from the ground have been found growing on trunks of old date palms in Santa Barbara, and also near the old town of Westminster in Orange county. Varieties at the cooperative date garden at Tempe, Ariz., have developed offshoot buds six and eight feet above the ground on the trunks of palms that were 15 years old.

Date culture is as yet so new in this country that no data have been secured as to how large or how small an offshoot should be to cut and root successfully, though much study and experimenting have been devoted to this subject. A medium-sized shoot, weighing from 10 to 12 pounds, is thought to be the best size. Offshoots of various sizes and weights have been cut in every month of the year in order to determine the most favorable time for cutting. The date palm seldom has a dormant period during which growth entirely ceases. The cold period of December and January, when growth is at the lowest ebb, has not been found favorable to cutting, and the period of greatest summer heat when growth is most active, and the tissues full of fermentable juice, has proved still more unfavorable. In southern California and Arizona the best time has been found to be from February to May.

The cutting of a date offshoot from the parent tree is a very delicate operation and must be done with the proper kinds of tools to be successful. There is now in use a method of rooting the offshoot on the parent tree before removing it.

As offshoots no longer can be shipped in from other countries because of government restrictions, and as the date industry is new in this country, the shoots are very scarce and high-priced; therefore it is urged that they be planted only in the soil best suited to them and under the most favorable conditions. A tree after a certain age ceases to bear offshoots and goes in for fruit bearing exclusively.

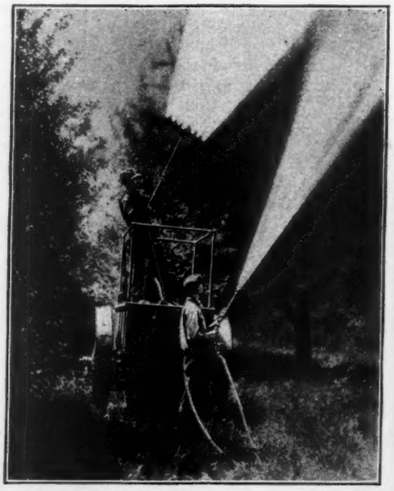
WELL CARED FOR SPRAYER GIVES LONG SERVICE

By TUDOR CHARLES, JR.

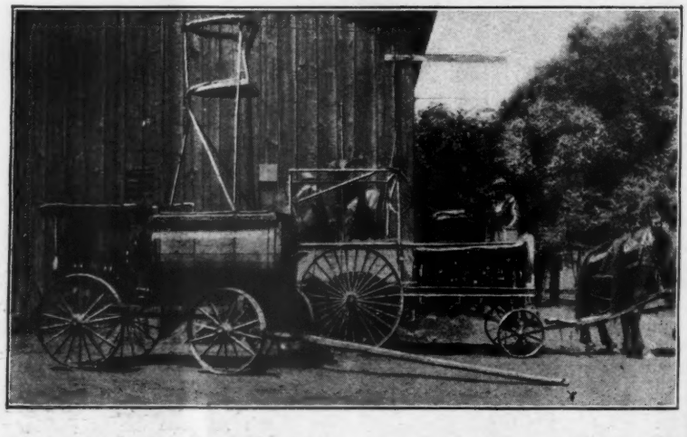
FOR a sprayer to handle approximately a million gallons of spray material is unusual, but that is the record of a machine bought by John Schoepfle of Elyria, Ohio, 19 years ago. If the spray liquid applied by this old 1911 model machine were in one body, it would make a pond five feet deep, 16 feet wide, and a quarter of a mile long. Last season, after 18 years service, new cylinders were put in the old spray pump, and Mr. Schoepfle plans to make use of the machine for several years more.

The excellent record of the sprayer used to spray Mr. Schoepfle's 33-acre apple orchard for the past 19 years is attributable largely to proper care. Not many machines subjected to careless handling would give satisfactory service for so long a time, on a large acreage.

While use of machines which are badly worn and will no longer do an efficient job of spraying is not to be recommended at any time, it is good policy to make spraying equipment last many years by giving it good care. Appreciation of the care necessary for maintenance of the fine working parts of large, power sprayers is much more widespread than formerly. The work of agricultural extension agents, farm and fruit magazines, and various information sources has helped to emphasize importance of proper sprayer care. The experience of this fruit grower with his long-lived machine, not only indicates its serviceability, but shows what can be done with new sprayers bought today.



Old and new models of sprayers used in John Schoepfle's 33-acre apple orchard at Elyria, Ohio. The old sprayer on the left in the photo below has been giving good service for the past 19 years due to the excellent care it has received during that time.

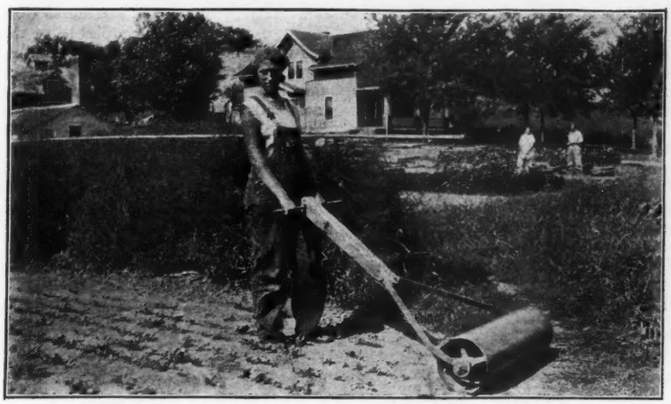


An interesting spectacle in Mr. Schoepfle's orchard is the operation of a new power sprayer along with the "old-timer." The former outfit has a low swung tank, resting on the

rear axle. The front wheels are small and will turn short, under the engine. Compared with the new machine the old one looks unwieldy. Another noticeable difference is in the towers. On the old sprayer the operator of the nozzle stands on a high tower, suggesting the fact that spray pumps and nozzles in former years were not capable of distributing the material with as penetrating force as are up-to-date models. While the operator of the new machine can do a more thorough job of spraying, yet his position is several feet nearer the ground and in some cases he will be spared the interference of overhanging limbs.

A HOME-MADE GARDEN ROLLER

THE HOME-MADE garden roller or finisher is a device with a thousand different types and methods of construction, for no two fellows ever want and need exactly the same kind of a roller. As each has a special job and need in his own particular condition they are in. The illustration shows such a roller easily built of old pulleys and brought to fine points. Sheet iron was bent around the pulleys and riveted. Just the right amount of old scrap iron pieces was put on the inside for the proper



case, the roller must be just so in this, and just so in that, as concerns handle length, width, heft and diameter.

It is a hard thing to pick up just the right thing to mold one out of concrete, but old pulleys are always easily found, and it does not make so very much difference as to the weight and held with a small amount of concrete to keep the pieces in a mass in the center of the roller. An old automobile axle made the axle for the roller. The handle portion is an easy part to make and attach, but the old pulleys made it possible to get the business end just as it was wanted.—*Frank W. Bentley.*

WALNUT CULTURE [From Page 7]

The growers were paid an average price of about $1 per bushel. Mr. Walker commented on the fact that there is a great difference in the quality of the nuts, and sums up his statement by declaring that if he continues in business next year he plans to buy nuts on a grade basis. The nut cracking machine developed by Mr. Walker is described in his own language as follows:

"The machine consists of an endless chain conveyor which grips the nuts and carries them between two circular saws. The saws remove the ends of the nuts. The chain then carries the nuts between two rollers which crush the shell causing it to fly outward from the kernel and leaving the kernel free and in large pieces, mostly quarters. The capacity of the machine is about 1000 pounds of nuts daily. After going through the machine the nuts are placed on the picking table where the girls separate the kernels and shells. They seldom have to use a pick as the kernels are mostly free, those in the shell being loose and very easily taken out."

Mr. Walker has found ready sale for the meats of the walnuts to concerns engaged in the manufacturing of ice cream, and to the soda fountain and the confectionery trade. He also believes that the demand will increase. As a matter of interest, it may also be said that Mr. Walker is still operating his walnut kernel business, and continues to employ labor as he did throughout the winter.

Several other walnut kernel establishments are being operated in Missouri, and all have been profitable. However, some have done a much larger business than Mr. Walker.

The Walnut Important as an Ornamental

The typical tree of the species is strong, large and bold in appearance. In fact, the black walnut is often called the giant of the forest. Its form and foliage are highly prized for their beauty. Moreover, it is one of the most graceful and attractive trees to be found on cultivated lands. Its combination of beauty, the usefulness of its timber, and the valuable food product produced through its nuts make it unique in its ranking as America's first tree.

For Highway Planting. No other tree lends itself so admirably for highway planting as the American black walnut. This is true because under fairly good care and good soil conditions the tree is a rapid strong grower and is comparatively free from injurious insects and diseases. In a few years' time trees planted along the highway should not only furnish abundance of shade but food in the form of nuts may be appreciated by many. It is also true that the planting of walnuts along highways may act as a suggestion to the traveler who in turn will be interested in planting and cultivating the walnut. The fact that the walnut grows well in a wide range of territory also entitles it to a place in the plantings along our highways. Its attractive form, its long life, and its large size are also factors to be considered. These things, it is believed, commend the black walnut for highway planting.

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By WELLS A. SHERMAN

Principal Marketing Specialist, Bureau of Agricultural Economics, U. S. Department of Agriculture, in charge of Fruit and Vegetable Division

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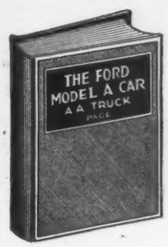

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To readers of the American Fruit Grower who are in need of a market outlet for fruit crops we offer assistance in placing them in touch with responsible shippers who will give them the best service possible.

In past years we have been able, where requested, to make profitable contacts for many of our readers. Realizing that the promise of an abundant fruit crop for 1931 will bring serious marketing problems to many of our readers, we offer to extend this service to them without cost.

It you have been dealing with a shipper or shipping organization in the past and have received reasonably good service, we strongly recommend against making any change during the present season. But if you are in a position where you are certain you will need the services of a dependable market outlet

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giving the number of trees in your orchard, the kinds and varieties of fruits, a statement as to the care and spraying they have received, and address it to

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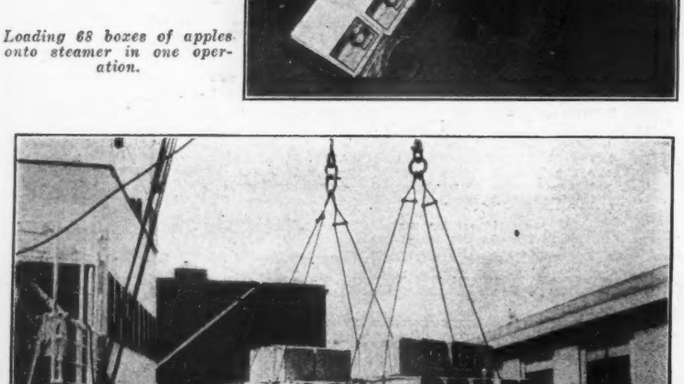
CALIFORNIA DEVELOPING NEW FOREIGN TRADE OUTLETS

By C. W. GEIGER

OF THE SEVERAL projects initiated or completed by the Board of State Harbor Commissioners in recent months, that bearing greatest significance to the State of California is the State Cold Storage Plant recently placed in operation at China Basin Terminal. This plant, the first unit which represents an approximate construction and equipment cost of $300,000, is the first step in a Statewide program looking to State cooperation with agriculturists, horticulturists and vineyardists in the matter of developing foreign trade outlets for California grown products. The terminal and equipment comprise modern refrigeration facilities capable of pre-cooling perishable commodities, such as apples, pears, deciduous fruits, vegetables and other farm produce, and provide efficient, safe and economic shipside transfer to ocean-going carriers. There is ample storage space in the terminal building offering almost unlimited opportunity for development and expansion as future traffic may demand.

Unloading boxes of apples from car at cold storage terminal.



Loading 68 boxes of apples onto steamer in one operation.

Such a plant will prove an outstanding acquisition to the Port of San Francisco, in that it will lengthen the shipping season for various perishable products and greatly increase the use of port facilities by California growers. It will reduce grower losses to a minimum and protect the reputation of California's products in foreign markets. The increased foreign demand for such commodities, which will naturally follow, will react in financial gain to the grower and increased popularity to the port.

The State Cold Storage Plant is the result of a comprehensive study of all data which have been submitted to the harbor board and of direct investigations of waterside plants in many other cities by representatives of the board. The installation consists of a power plant located on the first floor of the State Products Terminal Building, a series of cold storage rooms on the second floor, a provision for future expansion by adding stories above the second or converting additional space laterally along the second floor. This State Products Terminal Building is constructed of reinforced concrete and is so planned as to carry six stories. It is 812 feet by 135 feet in dimensions on the ground floor, while the upper story is 812 feet by 102 feet, and the present refrigeration plant occupies one-third of the second floor.

There are seven cold storage rooms with dimensions as follows: 32 by 80, 33 by 80, 33 by 50, 44 by 80, 64 by 80, 40 by 44, and 40 by 44. These provide combined storage capacity of 210,000 cubic feet, or, speaking in terms of apples, 3000 tons or 125,000 boxes. By expanding the equipment to take in the entire second floor, 630,000 cubic feet would be made available, or space for 375,000 boxes of apples. In case only the eastern section were completed to six stories, there would be 1,050,000 cubic feet of storage capacity, while, in the event that all three sections of the building were completed to the full six stories, this capacity would increase to the large figure of 3,150,000 cubic feet. In these figures, the area of the first floor is not included, as this area would continue to be used for transit shed purposes, in handling cargo. An excess amount of machinery has been installed so as to permit of doubling the capacity in a very short period of time. In other words, the structure offers almost limitless opportunity for development and expansion as future traffic may demand.

The building is closer to shipside than any other refrigeration terminal on the Pacific Coast, being within 65 feet from the center of the hatch of the average ship. It occupies a most advantageous location easily accessible by rail, truck or boat, and served directly by the State Belt Railroad, which connects with all rail lines serving San Francisco Bay. Particularly is it convenient to the fleet of cold storage vessels now calling at the Port of San Francisco. For the total of 251,000 tons refrigerator capacity of these vessels, 210,000 tons now berth at this terminal and the remaining 41,000 tons can be readily served from the terminal with minimum loss of time.

Located between Third Street and the Embarcadero (the two main arteries for harbor traffic), the structure is so planned as to make possible the minimizing of handling and rehandling hazards. A wide concrete ramp leads from the Embarcadero and Berry Street to a covered saw-toothed receiving platform, permitting trucks to unload within 10 feet of the storage room doors. Ample facilities are available for direct transfer from the second story to the ship, and delivery from the first floor is speedily handled by modern elevator (with capacity of six tons at 60 feet per minute), and by spiral chutes in the shipside corridor of the plant. There is a shipside loading platform 1036 feet in length, while the berthing space available, including emergency space at Piers Nos. 44 and 46 is 3200 feet.

Briefly summarized, the State Cold Storage Plant makes available to the grower and shipper of perishable farm products a thoroughly modern shipside refrigeration terminal at a most advantageous location on the San Francisco water front. To it perishable products can be shipped and held pre-cooled in storage pending transfer to refrigerated ocean-going carriers. The primary purpose of this plant is to serve the California grower of perishable fruits and vegetables in the development of new foreign trade outlets for their products.

Penny Wise—Pound Foolish

By W. E. Bobo

SO MUCH is being said about lowering the cost of production of farm products until one hesitates to advocate anything that might even appear to raise it, but a survey of conditions among growers and an analysis of the customary marketing practices in fruits and vegetables shows clearly that the industry is suffering from an overdose of the theory of lower production costs.

In an effort to practice economy, too many growers have gone beyond the point of safety and lost sight of the difference between economy and cheapness. This shows up in the matter of seed, fertilizer, grading, shipping containers and marketing service. It is probably more pronounced in the matter of grading and the use of proper shipping containers than elsewhere.

So he may have a large number of bushels or barrels over which to spread his cost of production, the average grower is inclined to let down on grades. The practice of packing a grade that will barely "get by" in order to increase the number of packages over which to spread the total cost of production, and then shipping in containers not suited to the commodity or because of poor quality can be purchased at a cheap price, is materially increasing the cost of production of many items of fruits and vegetables.

The evil of poor grading and the use of poor containers is so insidious in its action that the average grower does not know what is happening until it is too late. He knows price is lower and demand slower but fails to connect these with the time he succeeded in "getting by" with an off grade in a shoddy, maybe second hand, container. He has had no complaint on poor containers or off grades. What happens is that the car lot receiver follows the line of least resistance and simply offers a price for each purchase enough below the value of the merchandise to cover his loss from breakage and damage on the previous lot, and each link in the chain of distribution "got by" with the off grade.

The tragedy comes in the last act when Mrs. Housewife comes on the scene. She has no interest whatever in trying to "get by" with anything except value received. The shipper "got by" the carload buyer with a few shoddy containers, the carlot distributor "got by" the retailer with a little off grade merchandise, but not one single item of the product or the appearance of the container will get by her. She knows values and exercises her imperial authority in selecting what appeals to her. Attractive appearance more often than price is the determining factor. On most any market most any day in the year she has a large variety of related food items from which to make a selection. If beans are not attractive, she will take a nice clean bunch of turnips. If apples are scarred and bruised, she will pick out half a dozen of the best instead of taking a dozen attractive ones. If grapefruit is rusty and "light" she will pass it up or possibly buy the canned article. She has absolutely no interest in the original producer. If the product is not attractive, she leaves it right there and when the retailer dumps it in the trash barrel that night he makes a mental note to leave it off his list of purchases tomorrow or at least to buy it low enough to cover his loss.

A large number of food items of high value are rapidly drifting into lower channels of distribution and the growers wonder why. Stretching grade tolerance and pinching pennies in the purchase of shipping containers is at least part of the answer.

ROADSIDE MARKETING [From Page 5]

made a first-hand study of the roadside customers. They have ascertained their reasons for buying, their preferences as to products, their habits as to repeat orders, the factors that make them decide to stop at a new stand, the days they are accustomed to do their buying and why, and their reactions to signs and evidences of inspection.

States Aid in Improvement

That public agencies recognize the increasing importance of roadside marketing in our distribution of food products is evident in the interested attention that marketing officials in several States are devoting to the movement. The State of Massachusetts is extending a new form of official approval to roadside stands that are neat and attractive and that handle fresh local products of good quality. This approval is shown by signs issued on one-year lease terms by the State Department of Agriculture and subject to withdrawal without notice if the terms of the lease are broken.

Then a number of the more progressive stand-owners in Massachusetts who have been selling certain products that had been inspected by the State representatives and labeled as New England quality products, wished to carry this label, enlarged into a sign, over their stands. The State officials decided to provide these special signs and allow their use under conditions set forth in regulations. One of the regulations is that at least two of the products regularly sold at any market that displays this new sign shall be qualified to bear the New England label. All products sold at these stands must have been grown on the owners' farm or on neighboring farms.

Different Methods Tried

In several other States efforts have been made toward some regulation of roadside markets, with varying results. The aim has been to have both parties to the marketing transaction benefit by whatever method is used. The customer should be protected from undesirable practices and should have evidence that effort is being directed to this end. The owner of the well-conducted roadside market should benefit by publicity given to the fact that he is conforming to certain approved practices, not only to increase his patronage among careful buyers but to protect him from unfair competition from those who do not use careful methods.

New Jersey marketing officials, until fairly recently, listed the roadside stands in the State, visited them several times each year, and united them in an association. Products bought for resale were carefully regulated. All markets that operated under this supervision were allowed to use a State sign. The farmers paid a yearly fee to the association chiefly to cover advertising and the travel expenses of a supervisor who made free inspections. Because of the expense the operators disbanded and the supervision was discontinued, but under the direction of the county agricultural agent, the Chamber of Commerce of Bergen county has continued somewhat similar work in that county.

Rhode Island has regulations and supervision that are somewhat similar to those formerly used in New Jersey. The ear of corn is the symbol on its sign, and this symbol is also used in other New England States, and in parts of New Jersey.

Self regulation has been tried but does not seem yet to have gained a solid foothold. At one time both Massachusetts and Michigan had an active roadside market association, each numbering well over 100 members.

Policies are Taking Shape

Keen interest in roadside marketing is evident at every national or regional meeting of State marketing officials, and the State of New Hampshire has recently sponsored a Conference of Roadside Operators at which 210 persons met at the State university to discuss the problems of various roadside industries.

That all leaders do not agree as to the solution of these problems is a sign of the vitality and growth of the movement. Certain fundamentals regarding such factors as location, supply, quality and business methods are now generally recognized, although there are exceptions even here, but matters of policy are still open to much lively discussion. Everywhere we see signs of an earnest effort to shape desirable policies and to adapt them to local needs.

Prices a Debated Question

Prices form one of these debatable subjects, although all agree that to be permanently successful a market must use prices that impress the customers as being satisfactory when the quality of the goods and the conditions surrounding the sale are considered. Customers usually hope to buy at cash-and-carry prices, since they are furnishing the delivery, but many of them are evidently willing to pay higher prices to get the kind of products they want.

Prices vary from somewhat above retail prices to considerably below. In New Hampshire, 17 per cent of the owners attempt to sell at slightly above retail prices prevailing in Boston and surrounding cities, 20 per cent at prices decidedly below retail prices, 13 per cent at prices between retail and wholesale prices, and about 50 per cent sell at prevailing retail prices, according to a recent study. In Michigan, the prices at 100 selected roadside markets were compared with prices of products of similar kind and grade at retail stores in neighboring towns, by State investigators throughout one season. At 68 of these markets the prices were approximately the same as the retail prices, the prices at nearly one-half of the remaining markets averaged at least 10 per cent higher than those at near-by retail stores; the others sold at prices at least 10 per cent lower.

Resales Sometimes a Problem

Resales form another question that is much debated. Market officials in Massachusetts and some other States believe in making a distinction between products that have been raised near by and those that have been brought a considerable distance for sale. Officials in Ohio, on the other hand, find no disadvantage in the selling, at roadside markets, of products brought hundreds or even thousands of miles, provided no deception is practiced. If there is a demand for this produce they believe it should be filled.

Volume of Sales

Accurate information regarding the total or the relative volume of sales through roadside markets is at present impossible to obtain even for a single State, but some sample information is interesting. In Michigan a study of 39 roadside markets on farms located along a 16-mile section of one of the trunk line highways running through the fruit belt of the southern part of the State showed that in the aggregate these farmers were selling 53 per cent of their total production of fruits and vegetables at the roadside and were buying from and selling for their neighbors produce that equaled nearly a third more. And in this State it was found that growers of good fruit do not need to be on main highways to develop profitable roadside markets. Such markets are found on side roads and even in out of the way places; the assured supply and quality compensate the motorists for inconvenience.

In a group of markets studied in New Hampshire, four families got their entire income from their roadside markets and eight others got as much as 85 per cent. In the Illinois River melon district a large part of the total melon production is sold at retail at the roadside.

In Atlantic county, New Jersey, an unselected group of 46 markets reported an average business for one recent year of $3,070; in Cumberland county, 24 markets averaged $3,356; in Burlington county, 26 markets averaged $3,450. Fruits and vegetables were the chief products sold at these markets. As a result of a State study in New Jersey it was calculated that the total sales of farm products on roadside markets in New Jersey approximate one and a half million dollars.

A large co-operative association in Illinois has incorporated a subsidiary company which has established a chain of roadside markets in Du Page county, just west of Chicago. There is one central depot stand, open all the year, and eight seasonal stands. The central stand is supplied by carlot shipments from southern Illinois and elsewhere, and the smaller stands, located on the main roads leading out of Chicago to the west, are supplied by truck from it.

A review of the many careful studies that have been made of the movement in widely separated areas leads to the inevitable conclusion that the movement is gradually taking a very measurable shape and character. Like most rapid movements it is worth watching; it may make necessary certain readjustments in inspections, local market methods, and marketing policies. There are evidences that it will lend itself increasingly to a certain degree of organization, regulation, and co-operation and thus it will gradually fit itself neatly and satisfactorily into our pattern of food distribution.

New Sulphonated Oil Treatment Stops Rodents

(From Page Four)

an additional fungicide. Strychnine and other lethal substances can be dissolved in the oil to kill the rodents if they are starved into eating the protected bark. An extract of Cayenne pepper in turpentine added to the mixture also acts as an additional repellent.

The lasting qualities of the sulphonated oil are much better than those of lime sulphur, blood, or whitewash, Dr. Harvey says. The latter are washed off by heavy rains. No injury has been found from the sulphonated oil diluted with turpentine although it was applied heavily during the hottest days in July.

Experimental trees after rabbits were found dead from starvation or action of sulphonated oil. Trees in foreground treated with sulphonated oil not harmed. Others, in background, completely stripped.

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Harry K. Goodall, C. A. M., AMERICAN FRUIT GROWER, 1105 Merchandise Mart, Chicago

"I Must Answer That Ad. It's Just What I Want."

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BIG MONEY SELLING SHIRTS, TIES, UNDERwear, Sox, Raincoats, Lumberjacks, Sweaters, Leathercoats, Overalls, Pants, Playsuits. Outfit FREE! NIMROD CO., Dept. 102, 4922-28 Lincoln Ave., Chicago.

SELL HANDKERCHIEFS. WONDERFUL OPPORtunity. Send 25c for sample. Inquire Manchester Handkerchief Co., 188A South First St., Brooklyn, New York.

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LET US HELP YOU WITH YOUR CLASSIFIED Advertising problems. Tell us what you want to accomplish and let us write a snappy classified ad for you without charge. If it suits you, run it in AMERICAN FRUIT GROWER at the regular rate. No obligation, so write fully today to Harry K. Goodall, Classified Advertising Manager, AMERICAN FRUIT GROWER, Merchandise Mart, Chicago.

BEES

PURELY BRED GOLDEN ITALIAN QUEENS, YELlow to the tip. Satisfaction guaranteed. One dollar each. Overbey Apiaries, Leonville, La.

BEE KEEPERS—ATTENTION. "YOUR MAGAZINE has **opened a new field** for our products," writes Citronelle Bee Co. "The results were beyond our expectations. It was the first time we ever advertised in other than Bee Journals." Mr. Bee Man, you should use a classified ad in our next issue. Send it in today.

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WHITE OAK, ⅝-inch SPLINTS; 1,000 FEET $1.50. David Hardin, Patesville, Ky.

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COON, OPOSSUM, MINK, FOX, AND RABBIT hounds cheap, shipped for trial. Free literature showing pictures and breeding. Kentucky Coonhound Kennel, Kevil, Kentucky.

THE ABOVE ADVERTISER WRITES: "OUR REsults have been eminently satisfactory and have far exceeded our expectations. We believe anyone advertising in AMERICAN FRUIT GROWER will be entirely satisfied with the results obtained."—(Signed) R. H. Brummett, Manager.

HUNDRED COONHOUNDS, FOXHOUNDS, RABbithounds, Blueticks, Redbones, Blacktans. Supply Catalog. Beckenneis, A-15, Herrick, Illinois.

FEW GUARANTEED COON HOUNDS, RABBIT hounds and combination hunters on trial. Bill Rives, B 3, Sedalia, Kentucky.

FARMS AND ORCHARDS

TWO GOOD ORCHARDS. DELIGHTFUL CLIMATE. Twenty Thousand each—easy terms. Dr. Brown, Hendersonville, North Carolina.

83 ACRES N. E. IOWA; 1160 APPLE TREES; 100 Plum; 10 Acres Alfalfa; good Nursery stock, modern buildings. For particulars write Box 801, American Fruit Grower, Merchandise Mart, Chicago.

ORCHARD—3000 APPLE TREES. 160 ACRES. Good buildings. Timber. Box 553, Windber, Pa.

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WANTED—FARMS OR BUSINESS EVERYWHERE. Cash buyers. National Brokers, 2513 Lakewood, Detroit, Mich.

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PAYING OUT » » » VERY SATISFACTORILY

This little story of want ad success is of especial interest to concerns who need agents or salesmen to sell their goods—and such companies are legion. A few such firms have *discovered* that classified advertising in AMERICAN FRUIT GROWER *pays* when used for this purpose. A brief letter from one of these advertisers just received says:

> The classified advertising we have been doing in AMERICAN FRUIT GROWER has been paying out very satisfactorily. We have used your magazine now for several seasons and expect to continue with it. (Signed) Nimrod Shirt Co., 4922 Lincoln Avenue, Chicago, Illinois, by W. T. Maughan. June 20, 1931.

Refer now to their ad on this page under "Agents Wanted." If you need agents or salesmen to sell your products, you can well profit by following the example of Nimrod Shirt Company and American Products Company (Albert Mills), who have advertised in every single issue for ten long years. During the Fall and Winter months especially, after the fruit crop has been harvested, many of our readers have the time and are desirous of representing reliable companies in a sales capacity in their own localities. Tell them about your proposition in our next issue. You'll find it will pay you. Address:

Harry K. Goodall, *Classified Advertising Manager*
AMERICAN FRUIT GROWER
Merchandise Mart, Chicago, Illinois

WANTED TO HEAR FROM OWNER HAVING farm or unimproved land for sale. Give cash price. John Black, Chippewa Falls, Wisconsin.

FEMALE HELP WANTED

WOMEN, GIRLS, WHO WANT TO MAKE $4 EXtra money daily at home; light work; send 25c for instruction and sample used, money refunded on return of sample. La-Monge Co., Dept. E, 75 Locust, Rochester, N. Y.

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NATURE'S GREATEST FERTILIZER. CANADIAN hardwood ashes, replaces what growth has extracted. Orchards; meadows. George Stevens, Peterborough, Ontario.

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GET OUR PRICES ON LABELS: GUMMED AND ungummed. Send sample of your label for prices, circulars, addslips, folders, letterheads, envelopes, blotters. Plain or in colors. Write us. Old Dominion Label Company, Bridgewater, Virginia.

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MAIL CARRIERS—POSTOFFICE CLERKS. $1700-$2300 year. Steady work. Men 18-45. Common education sufficient. Sample coaching free. Write immediately. Franklin Institute, Dept. F60, Rochester, N. Y.

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HOW MANY CHICKENS DO YOU KEEP? RAISing chickens is extremely profitable. Do you realize that poultry and poultry products in the U. S. A. during the last five years yielded a cash income to the farmer greater by $20,000,000 yearly than did wheat? That's a fact. In 1930 the poultry income was well over a billion dollars. How much of that did you get? Raise more poultry. It certainly pays. You can advertise your breeding stock, hatching eggs and baby chicks in AMERICAN FRUIT GROWER, AMERICAN THRESHERMAN and POULTRY CULTURE with a combined circulation of over 450,000 for only 20 cents a word—a real bargain. Send your ad now or ask for sample copies and further facts. Harry K. Goodall, Classified Advertising Manager, Magazines, Inc., 1105 Merchandise Mart, Chicago.

REFRIGERATION

ARTIFICIAL ICE-MAKING INSTRUCTIONS, 50c. (Machinery Unnecessary.) Neil Henry Tasker, Shamokin, Pa.

RABBITS

PEDIGREED FLEMISH GIANTS "GUARANTEED." Close Rabbit Farm, Tiffin, Ohio.

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LIQUID KILLS TREES, GRASS, WEEDS, EASILY made. Particulars free. Miller Agency, Kensett, Arkansas.

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GOLD LEAF TOBACCO; CHEWING 5 POUNDS $1.25, ten $2.00. Smoking 5 pounds $1.00. Fifty cigars $1.50. Satisfaction guaranteed. Pipe free. Pay postmaster. CO-OPERATIVE FARMERS, B19, Sedalia, Kentucky.

WANTED

WANTED: GOOD SECOND HAND APPLE WASHER, also cider press and apple grader. Write L. L. Spafford, Everton, Mo.

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If this were your ad, others would be reading it now just as you are reading this.

This demonstrates the attention-getting value of a "display-classified" ad in AMERICAN FRUIT GROWER.

This space is 2 inches and the cost is only $39.20 or at the rate of $19.60 an inch. For this small sum, YOU can place your sales message **prominently** before over a quarter of a million live readers who need what you have to sell.

Send in your copy for a "display-classified" ad for the next issue NOW. Smallest accepted in this style is ½ inch costing but $9.80—a very small amount for reaching so many real prospective customers. Address:

HARRY K. GOODALL
AMERICAN FRUIT GROWER
Merchandise Mart, Chicago

What Have YOU To Sell?

Not your main crop of fruits—this is not the place to sell that—but it *is* the place to sell many things you own that perhaps you no longer need or use. Many of our quarter of a million subscribers do need and want these very things and will pay you cash for them. You can use the cash. Why not get it?

Look over this alphabetical list of things you may own that you would like to turn into cash—

Bees	**Gasoline Engines**	**Poultry and Eggs**
Brooders	**Honey**	**Pruning Tools**
Canning Machines	**Incubators**	**Real Estate**
Cream Separators	**Insecticides**	**Seeds**
Fencing	**Lumber**	**Sprayers**
Fertilizers	**Nursery Stock**	**Stump Pullers**
Fruit Packages	**Orchard Lands**	**Tractors**

An easy, inexpensive way to sell any of the above items is to use a classified ad in this live department of AMERICAN FRUIT GROWER in the very next issue. The cost is low—only 20 cents a word. Write your message for our readers now. Use separate sheet. Clip this announcement, attach ad copy, sign and mail with proper remittance at once.

Name .....

Address .....

***Send this before Aug. 20th for Sept. Issue to:* Mr. Goodall, C.A.M., AMERICAN FRUIT GROWER, 1105 Merchandise Mart, CHICAGO, Illinois**

Index to Display Advertisements

The concerns whose advertisements appear listed below are equipped to give prompt and satisfactory service to the American fruit grower. Most of them issue literature that is freely at the disposal of our subscribers. It is to the advantage of all that when writing to an advertiser you use the address exactly as it appears in the advertisement, and that you state in your letter: "I read Your Advertisement in AMERICAN FRUIT GROWER."

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